

COMMENTARY ON:

"Environmental Tobacco Smoke and Lung Cancer in Nonsmoking Women: A Multicenter Study," H.T.H. Fontham, et al., Journal of the American Medical Association 271(22): 1752-1759, 1994

This study surveyed 653 nonsmoking female cases of lung cancer for ETS exposures. The lung cancer cases were selected from five metropolitan areas in the United States.

Results:

The study reports a 24 percent increased risk of lung cancer among women exposed to ETS in the household during adult life; for occupational settings, 39 percent; and for social settings, 50 percent. The researchers report that tobacco use by the spouse is associated with a 30 percent increase in risk of lung cancer among female nonsmokers. They reportedly observed an increased risk of lung cancer associated with increasing exposures to ETS from spousal smoking. The authors write: "Elevated risks associated with adult ETS exposures were observed in women with and without childhood exposures, but the elevations in risk for women exposed during childhood were about twice as high as those without childhood exposures."

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Comments:

- In their introduction, the authors mention another "large U.S. study" on ETS and lung cancer by Brownson, et al., published in 1992. The authors note that the Brownson, et al. study would have had an "impact on the summary U.S. risk estimates" in the EPA report on ETS. That is because, the authors note, "Brownson, et al. observed no increased risk in the ever-exposed category for spousal ETS"
- The authors claim that "tobacco use by spouse(s) was associated with a 30 percent excess risk of lung cancer" However, close examination of the data from the study reveals that this risk estimate was only statistically significant if based on "any type of tobacco" reportedly smoked by the spouse. If cigarettes, cigars, or pipes were examined separately, no statistically significant associations were observed for spousal smoking and lung cancer. (Table 2)
- The authors write that "an increasing risk of lung cancer was observed with increasing pack-years of spousal ETS exposure" However, the data reveals that none of the risks reported for all lung cancers at any level of ETS exposure were statistically significant. (Table 3)

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- All of the reported associations between adult lung cancer and childhood exposure to ETS from the father, the mother, or other household members were negative, indicating that those reporting exposure to ETS in childhood had lower risks of lung cancer in adulthood than those who reported no childhood exposures. (Table 4)
- According to the data in the study, household exposures (by spouse and other individuals) to ETS among adult nonsmokers were not significantly associated with increased risks of lung cancer. (Table 6)
- None of the "crude" risk estimates (based on raw data) for occupational exposure to ETS were significantly associated with lung cancer among nonsmokers. (Table 6)
- In this study, as in all spousal smoking studies, no actual ETS measurements were taken. Instead, exposures were estimated through questionnaire and were based upon recall of exposures to ETS over the course of an entire lifetime. This is a crude and inaccurate measure of ETS exposure.
- The authors claim that they considered other important risk factors for lung cancer in nonsmoking women and that none of those factors affected the reported associations with ETS.

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However, the authors did not consider dietary saturated fat intake in their analysis. A recent study from the U.S. National Cancer Institutes by Alavanja, et al., reported that high saturated fat consumption was associated with an increased risk of lung cancer in nonsmokers, independent of any exposures to ETS.

Although this study is touted as the "largest of its kind," the study sample of 653 cases was subdivided in order to present a large number of statistical analyses. Thus, a number of the reported associations in this study are not based on the complete sample. Indeed, some of the subgroups analyzed consisted of fewer than 100 individuals.

The cases in this study are not representative of the U.S. population as a whole. A large percentage of the cases and the controls were poorly educated and from lower socioeconomic backgrounds. These two factors alone could have important implications for disease risk in the sample population because they have been associated with poorer diets, lack of access to medical care and poorer health care in general.

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